Dimensioning with SolidWorks - Demo

Although most demos are implemented with word documents, this demo employs slides so that more details can be shown to the students as the drawing is constructed.

Part 1
Formal Drawings

Definition: Detailed multi-view representations of a finished part

Formal Drawing Components:
1. Extracted Drawings
   - Extracted Views
   - Detailed Features
   - Title Block
2. Dimensions
   - Size and Type of Features
Basic Dimensioning

Dimensioning is used to define an object so that it could be manufactured and must:

• Define the overall size of the part in all 3 dimensions.
• Define the size and location of the features of the part in all 3 dimensions.
Basic Dimensioning

Overall Size

Features Size and Location

Dimensioning in SolidWorks
Basic Dimensioning Arcs and Circles

Overall Size

Features Size and Location

Ø1
Baseline versus Chain Dimensioning

- There are many ways to use dimensions to **locate features**.
  - Chain
  - Baseline

*(Both techniques are acceptable, however baseline dimensions are preferred.)*
SolidWorks: Adding Dimensions, Center Marks and Center Lines

Dimensions can be added using the “Smart Dimension” feature.

Note that sometimes the Isometric needs to be re-scaled to allow adequate drawing space which requires a NOTE.

Notes can be added to reduce the number of dimensions by stating symmetry or identifying fillet radii.
Opening the Drawing for Dimensioning

Open **Dimensioning_Demo.SLDPRT & SLDDRW** from the SolidWorks 8 EEIC website as shown above.
Setting the Dimensioning Precision

Since the drawing we are dimensioning is in INCHES, **2 numbers** to the right of the decimal point are sufficient for this drawing. Click **OK** to save.
Establish the Overall Size (Height, Width & Depth) using Smart Dimension

- **Width**
- **Depth**
- **Height**

Usually one dimension between center points of circles in a symmetrical object.
Size and Locate the Holes

Note that the location has already been established by the Symmetry note and the hole center point separation is 8 inches.

Using SYMMETRY simplifies:
1. Construction &
2. Dimensioning
Size and Locate the Other Features

Note that the following Dimensioning Guidelines have been followed:
1. Dimensions are located in the "Characteristic View"
2. Positive cylinders are dimensioned where they appear as rectangles
3. Negative cylinders are dimensioned where they appear as circles
4. Dimensions are generally located between Orthographic Views
5. Object is not OVER DIMENSIONED (no more dimensions allowed!)
Dimensioning Wrap Up

Rules of Dimensioning

1. Overall size in all 3 dimensions
2. Size and location of all features in all 3 dimensions

Homework Assignment

Problem 6.4 (qq)
Model part and create 2D Drawings with all necessary formatting (dimension in next class)

Note that these dimensions do not reference the BOTTOM of the object.

CAUTION: Do not add high-lighted fillets in order to eliminate difficulty in dimensioning.
Two Options for Out of Class Home Work

Want to reduce your construction effort?
Consider MIRRORING!

Option 1

Option 2
Open the following document: “Dimensioning Part 1-InClass Assignment” and add dimensions to the following 4 shapes.